

LINCOLN CITY/LANCASTER COUNTY PLANNING STAFF REPORT

for February 1, 2006 PLANNING COMMISSION MEETING

PROJECT #: Special Permit #1866A

PROPOSAL: To extend an existing wireless facility 13' to a height of 98' to accommodate the collocation of additional antennas.

LOCATION: 2401 North 48th Street

WAIVER REQUEST: Waive the required fall zone.

CONCLUSION: The extension of the existing tower to accommodate collocation makes more efficient use of an existing facility and eliminates the need for another tower to accommodate this carrier. The extended tower is compatible with the buildings in the surrounding business district, and it is at a scale consistent with other facilities such as light, flag and power poles. The request is justified as it will allow the carrier to provide service consistent with the requirements of the 1996 Telecommunications Act.

<u>RECOMMENDATION:</u>	Conditional Approval
-------------------------------	----------------------

Waiver:

Fall Zone from 49' to 4'

Approval

GENERAL INFORMATION:

LEGAL DESCRIPTION: Lot 2, UPC 1st Addition.

EXISTING ZONING: B-3 Commercial

EXISTING LAND USE: Commercial building, wireless facility.

SURROUNDING LAND USE AND ZONING:

North:	Commercial	B-3
South:	Commercial	B-3
East:	Commercial	B-3
West:	Commercial	B-3

HISTORY: October 4, 2000 - Special Permit #1866 was approved authorizing an 85' tall wireless facility capable of accommodating the antennas of two wireless service providers.

COMPREHENSIVE PLAN SPECIFICATIONS:

Page F25 - The 2025 Comprehensive Plan's Land Use Plan designates commercial land uses in this area.

Page F126 - Wireless Telecommunications - The placement and construction of such facilities need to occur in a way that is compatible with the natural and built environment. Taller, more intensive facilities should be located in commercial and industrial areas. Facilities in residential areas should be unobtrusive, of a scale consistent with the neighborhood setting, and sited in a way that does not detract from the enjoyment of the neighborhood by its residents.

ANALYSIS:

1. SP#1866 was approved in 2000 authorizing Qwest to construct an 85' tall wireless facility capable of accommodating at least two carriers. The facility was actually built to a height of 81', and in 2004 Qwest sold the facility to Sprint. This request is from Alltel on behalf of Sprint, and seeks to extend the maximum allowed height of the tower to 98', 13' higher than originally approved and 17' higher than actually constructed.
2. The height of 98' allows for a 95' tall tower with a 3' lightning rod. The centerline of Alltel's proposed antennas will be at approximately 91', and will not extend beyond above the top of the tower.
3. The application states that the primary need for this site is first capacity, and that the secondary need is for coverage. A graph entitled "Sperry Traffic Utilization" was submitted to illustrate how a nearby wireless facility site located at North 47th & Y Streets generally is over used. This results in reduced service (dropped calls, inability to make a call) in the area south of Leighton Avenue and east of North 48th Street. The coverage maps labeled "Best Server Map at 70 and 95 Feet" depict the distribution of service depending upon the height of the tower. The applicant states that the map showing the distribution of service with the antennas at 95' meets Alltel's service objectives.
4. A waiver to the fall zone was approved with the original special permit, and is again sought with this request to accommodate the increase in proposed height. The lot is "L-shaped", and the tower is located at a point 4' from the east property line, and 40' from the north property line. The fall zone requires that the tower be setback at least one-half the height of the tower from lot lines. The original waiver reduced the fall zone from 42.5' to 40' and 4'. This request seeks an adjustment from 49' to 40' and 4'. The original application noted that the fall zone extended into parking lots, and that a waiver would not significantly impact surrounding properties. All the area of the required fall zone continues to extend into parking lots.

5. STANDARDS FOR EVALUATION:

Conformity with Comprehensive Plan.

- A. The Comprehensive Plan designates commercial land uses in this area. This request is consistent with the type of development recommended by the Land Use Plan for this area.

Preference of site location in accordance with Section 10.008.

- B. There are three location preferences as follows:

1. Preferred Location Sites:

(A) Publicly owned sites on which personal wireless facilities can be unobtrusively located with due regard to visibility, aesthetic issues, traffic flow, public safety, health and welfare. Such sites may include locating on existing buildings, co-locating on existing towers, screened roof-top mounts, water towers, billboards, electric substations, or other camouflaged sites, but shall not include new towers.

(B) Privately owned sites with existing structures on which personal wireless facilities can be unobtrusively located with due regard to visibility, aesthetic issues, traffic flow, public safety, health and welfare. Such sites may include locating on existing buildings, co-locating on existing towers, screened rooftop mounts, water towers, billboards, electric substations, or other camouflaged sites, but shall not include new towers.

(C) Publicly owned sites in which the facility is minimally obtrusive, has a minimal impact on the surrounding area, is an appropriate distance from residential land uses, has minimal impact on residential uses, with due regard being given to the scale of the facility and the surrounding area and the impact on the location.

(D) Sites in commercially or industrially zoned districts in which the facility is minimally obtrusive, has a minimal impact on the surrounding area, is an appropriate distance from residential land uses, has minimal impact on residential uses, with due regard being given to the scale of the facility and the surrounding area and the impact on the location.

2. Limited Preference Sites, in order of priority:

- (A) Sites on other public property.
- (B) Sites on other commercially or industrially zoned property.
- (C) Screened antennas on multi-family residential structures exceeding 30' in height.
- (D) Camouflaged structures with minimal impact on residential land uses.

3. Sensitive Location Sites. Sites located in areas with residential uses, environmentally sensitive areas, Capitol View Corridors, the Capitol Environs District, entryway corridors, downtown, landmarks or landmark districts, properties listed or eligible to be listed on the National Register of Historic Places, the Airport Environs, and other sensitive areas. The applications for personal wireless facilities which are located at sensitive sites will be required to demonstrate a technical need to locate a personal wireless facility at a sensitive site and that other reasonable alternatives do not exist for the facility at a location which is not a sensitive site.

This application is considered a preferred location site because it is a privately owned site with an existing structure on which personal wireless facilities can be unobtrusively located.

Compatibility with abutting property and land uses.

- C. This facility is located in the University Place business district, and all surrounding zoning and uses are commercial. The nearest residential zoning is the R-6 district approximately 200' away northwest of the site.

Adverse impacts such as visual, environmental or noise impacts.

- D. The proposed antennas will be a flush-mount design to reduce the silhouette of the facility. This antenna design helps minimize the impact of the extension, and should be a requirement of the permit to ensure that any future antennas are of a similar design.

Availability of suitable existing structures for antenna mounting.

- E. Collocation is encouraged by the Wireless Ordinance to help reduce the number of towers throughout the community, and to make more efficient use of existing facilities. Extending this facility to facilitate collocation also eliminates the need for an additional tower in this area.

The applicant was also requested to consider collocation both on buildings and on this tower but without having to extend it. The only buildings in the area tall enough are located on the Wesleyan University campus. The applicant notes that the campus is outside the site candidate search ring, and would not work due to proximity to another facility located at Northeast High School, and because it is too far from the North 47th & Y Streets facility. The search ring is identified on the map entitled '33rd Huntington Search Ring'. The application also includes coverage maps showing the difference in coverage between antennas located at 70' and 95' in height. The applicant notes that the gains in capacity and coverage at 70' are not adequate to meet the carrier's needs, but those achieved when the antennas are located at 95' are.

Alltel notes in their application that a third carrier, Verizon, intends to collocate below the Sprint antennas at approximately the 70' level. All existing and proposed antennas are of the low-profile, flush-mounted type.

Scale of facility in relation to surrounding land uses.

- F. The facility is located behind the U.S. Post Office building, and is set back approximately 160' from North 48th Street. This reduces the visual impact of the tower when viewed from North 48th Street, and is of a scale consistent with other existing facilities in the area such as flag, light, and power poles.

Impact on views/vistas and impact on landmark structures/districts, historically significant structures/districts, architecturally significant structures, landmark vistas or scenery and view corridors from visually obtrusive antennas and back-up equipment.

- G. This site is beyond the boundary of the nearest historic site, the Charles F. Creighton local landmark district, located at approximately North 49th Street and Leighton Avenue. The impact of this facility upon the district approximately two blocks away would be negligible.

The North 48th Street/University Place Redevelopment Plan, adopted in 2004, encompasses this site. That plan calls for future commercial buildings and associated parking at this location, as well as development at a scale compatible with a pedestrian-oriented neighborhood business district. This request does not conflict with the tenets of that plan, and no other significant impacts are noted.

Color and finish.

- H. The proposed facility has a galvanized finish consistent with Section 27.68.110(c). No lighting is proposed.

Ability to collocate.

- I. The facility is being extended to accommodate a second carrier, and the applicant states that a third is expected to collocate at approximately the 70' point. This meets the standard of the Zoning Ordinance which requires towers less than 100' in height to accommodate two carriers, and those over 100' to accommodate three.

Screening potential of existing vegetation, structures and topographic features, and screening potential of proposed facilities, ground level equipment, buildings and tower base.

- J. The Design Standards require plants that create a 70% screen up to 8' in height, with 50% of the plants growing to a mature height of 35'. SP#1866 was approved noting that the area surrounding the tower was entirely paved, and that the live plants would not be appropriate and would likely not survive. The surrounding buildings were found to provide adequate screening. This situation has not changed.

Evidence of good faith efforts, and demonstration that a preferred or limited preference site was not technically, legally, or economically feasible.

- K. As noted previously, at staff's request the applicant evaluated the existing facilities in the area and eliminated them from consideration. There are no other preferred or limited preference sites in the area.

CONDITIONS:

Site Specific:

1. This approval permits a 13' extension to allow a 98' tall wireless facility capable of accommodating at least two wireless carriers consistent with the revised site plan

General:

2. Before receiving building permits:
- 2.1 The permittee shall complete the following instructions and submit the documents and plans to the Planning Department for review and approval.
- 2.1.1 A revised site plan including 5 copies showing the following revisions:
- 2.1.1.1 A revised plan set that includes only a site plan and elevation plan.
- 2.1.1.2 The site plan expanded so that the detail contained on it is legible.
- 2.1.1.3 The correct scale on all the plan sheets.
- 2.1.1.4 Clearly delineate the property lines for Lot 2, and show the setbacks from all wireless facilities (tower, shelter, etc.) to the property lines.

2.1.1.5 A note stating that all antennas mounted on the facility must of a flush-mount design.

2.1.1.6 Revise the elevation plan sheets to note:
A. Antenna elevations are approximate.
B. Change the note "CL of Proposed Lightening Rod" to "Top of Wireless Facility."

2.2 The construction plans shall comply with the approved plans.

Standard:

3. The following conditions are applicable to all requests:

3.1 Before use of the facility all development and construction shall have been completed in compliance with the approved plans.

3.2 All privately-owned improvements shall be permanently maintained by the owner.

3.3 The site plan accompanying this permit shall be the basis for all interpretations of setbacks, yards, locations of buildings, location of parking and circulation elements, and similar matters.

3.4 This resolution's terms, conditions, and requirements bind and obligate the permittee, its successors and assigns.

3.5 The applicant shall sign and return the letter of acceptance to the County Clerk within 30 days following the approval of the special permit, provided, however, said 30-day period may be extended up to six months by administrative amendment. The clerk shall file a copy of the resolution approving the special permit and the letter of acceptance with the Register of Deeds, filling fees therefor to be paid in advance by the applicant.

Prepared by:

Brian Will, 441-6362, bwill@lincoln.ne.gov
Planner

January 18, 2006

SP#1866A
2401 North 48th Street - Alltel

Page 8

APPLICANT: Alltel
1440 M Street
Lincoln, NE 68508

OWNER: Sprint Sites USA
6550 Sprint Parkway
Overland, KS 66251

CONTACT: Ralph Wyngarden
Faulk and Foster
2680 Horizon Drive
Grand Rapids, MI 49546
616.975.0923



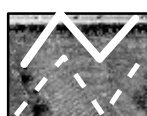
2005 aerial

Special Permit #1866A 2401 N. 48th St.

Zoning:

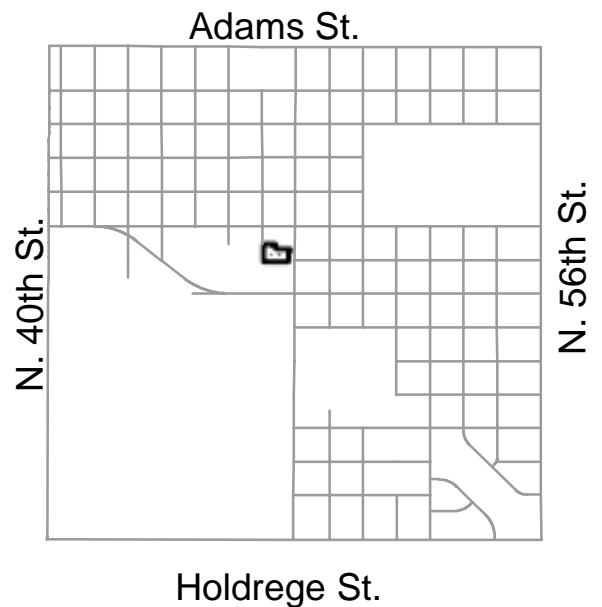
R-1 to R-8	Residential District
AG	Agricultural District
AGR	Agricultural Residential District
R-C	Residential Conservation District
O-1	Office District
O-2	Suburban Office District
O-3	Office Park District
R-T	Residential Transition District
B-1	Local Business District
B-2	Planned Neighborhood Business District
B-3	Commercial District
B-4	Lincoln Center Business District
B-5	Planned Regional Business District
H-1	Interstate Commercial District
H-2	Highway Business District
H-3	Highway Commercial District
H-4	General Commercial District
I-1	Industrial District
I-2	Industrial Park District
I-3	Employment Center District
P	Public Use District

One Square Mile
Sec. 17 T10N R7E



Zoning Jurisdiction Lines

City Limit Jurisdiction



PURPOSE STATEMENT FOR AMENDMENT TO SPECIAL PERMIT NO. 1866

INTRODUCTION

Alltel Communications of Nebraska, Inc. seeks an amendment to Special Permit No. 1866 approved October 4, 2000 as Resolution No. PC-00637 in order to extend the existing pole by 15' to a height of 95'. Special Permit No. 1866 approved an 85' tall wireless communications facility intended to address Qwest's desired height of 69' with an additional 16' added to allow for co-location. The pole was actually constructed to a height of only 80' rather than the approved 85'. The site was subsequently acquired by Sprint which placed its antennas at the top and then transferred it to tower company Global Signal.

MONOPOLE EXTENSION

In 2004 Sprint acquired additional ground space from the underlying property owner to lease to Alltel and began the process for a monopole extension of 28 feet to a height of 108 feet. Sprint's intent was to raise its own antennas and to include Alltel on the extension as well. Their representative Michelle Roth met with neighbors but I do not believe they actually moved forward with an application. Subsequently, Sprint indicated to Alltel that it would remain at its current height and that Alltel would need to go forward on its own for a monopole extension. I believe this was concurrent with the transfer to Global Signal.

Alltel has reduced the proposed extension to the minimum height necessary to achieve its service objectives and now proposes a 15 foot increase to a height of 95 feet. The antenna panels are 97.4" long and will be mounted on downtilt brackets flush to the pole as shown in the antenna mount details on sheet A-3 of the drawings submitted. They will be mounted so as not to exceed the height of the proposed extension.

SYSTEM DESIGN GENERALLY AND THE NEED IN THIS LOCATION

Cell service is basically a line of site type of service where each tower facility serves users in a surrounding area that varies in size with the height of the tower as well as any manmade or geographic feature that can impact the signal. This area is called a cell. That is why we speak of cell service and cell phones. A tall tower will create a large cell and a shorter pole will create a much smaller geographic footprint. The inability to communicate using a cell phone in a given location can arise from either a coverage issue (the location you are in is not within a cell) or a capacity issue (you are within a cell but the site's capacity is full and your call cannot be handled).

Coverage

A stationary caller may have an entire call within one cell utilizing a single tower. A moving caller will be handed off from one cell to the next as the caller moves away from one tower location and closer to the next. The system detects the weakening signal from the tower the caller is on and the increasing signal from the tower the caller is approaching. When the strength of signal for the approaching tower exceeds that of the tower the caller is on the caller is handed off to that tower ahead. On a long call this can continue from tower to tower to tower.

If the caller reaches a point where there is no tower to be handed off to, the call is dropped and the caller can not reach the person they were talking with again until they come within range of another tower. This gap is referred to as a gap or hole in coverage. An applicant for a tower seeking to fill that gap would have a primary objective of providing coverage.

Sometimes coverage is categorized or mapped based on differing levels of signal strength as you get farther from a tower. Closest to the tower you have an area of in-building coverage, as you get farther away and the signal is weaker you lose the ability to talk when inside a building but still have coverage while in a car. The signal propagation maps provided previously are useful for discussing coverage but not for discussing capacity concerns as explained below.

In rural areas you often see taller guyed towers placed so as to provide in-building coverage to a town and in-car coverage far enough down the road in each direction to handoff to the next tall tower. Those living in the in between may have problems talking in their home and may need to go out and stand on the deck or drive to a nearby high point but providers live with this because the number of people inconvenienced is small. In a more urban environment with many buildings of substantial construction you need more shorter towers to provide each area with in-building coverage. Having only in vehicle coverage would inconvenience a very large number of people hoping to make and receive calls indoors.

Capacity

There is also the issue of capacity. A site with no capacity exhibits characteristics similar to a location with no coverage at all. A caller will encounter the same symptoms of dropped calls and inability to access the system but for a different reason.

The capacity of each cell tower is limited. Each cell can only serve a certain number of users. That is another reason you see taller guyed towers in more rural areas and shorter self support and monopole towers in more urban areas. Because there are fewer users in the rural areas a tall tower covering a large geographical area can actually have significantly less call traffic than a short monopole in a busy area of a city. In an urban area many smaller cells are necessary because of the greater density of users. This difference in desired cell size also changes over time as a market matures in terms of cell usage.

Lets take a hypothetical town called Anytown. Back when only a few business users in Anytown had cell phones one tower outside of a town was enough. They put up a 310' tower on the east side of town and called the site Anytown. It really isn't crucial which side of town it is on because one tower anywhere nearby is enough to meet current needs. It met Anytown's needs for a while. However, as the number of users in the town grew beyond what that tower can handle from a capacity standpoint the provider needed to add a site on.

At that point it can be still be said that the first Anytown site provides *coverage* to the entire town but it can't handle the *capacity*. The provider now places a 220' self-support tower on the west side of town and calls it AnytownWest. That will equally divide the load. Putting it on the north or the south side of town won't do this. For the time being these towers share the load and cover the town. A caller driving west across town would be handed off somewhere in the middle from the Anytown site to the AnytownWest site.

Well, Anytown has a good economic base and thriving businesses so it is growing in population and now parents are getting their kids phones and grandpa and grandma want phones for security and now they can take pictures and transfer data so pretty soon the towers on the east and west aren't enough. The provider now needs to

place a 100' monopole right in the middle of town to offload the Anytown site to the east and the AnytownWest site to the west. They call this site AnytownDowntown. Shorter height and a precise location ensure that the AnytownDT site offloads the proper amount of call traffic from each overburdened site. The town may say wait a minute we have a water tank over on the west side of town or what about the other tower on the east side of town but these wont work. They are each too far from one site and thus can't accomplish the task of offloading traffic to relieve the overcapacity there and too close to the other site resulting in strong signal overlap and lack of a clean handoff (a caller between the two overly close towers being repeatedly bounced back and forth as the signals compete, loading both towers and increasing dropped calls and service interruptions).

As usage in a community grows towers get shorter but there are more of them and in harder and harder to find locations. And there is much less flexibility in where they can be placed.

This Location

As just illustrated with hypothetical Anytown, the location chosen by the radiofrequency engineer in the present case is precisely determined with reference to the appropriate distance from existing tower locations and the height chosen by the RF engineer takes into account the projected number of calls so that the site doesn't bite off more than it can chew. In this case Alltel's proposed height and location will create a cell big enough to capture the users that are currently overburdening adjacent towers but small enough so that it can handle its load with room to grow as the number of users and amount of usage in the immediate area continues to expand. Its location is such that it will appropriately offload each of the surrounding sites and ensure clean handoffs in each direction will at the same time bolstering nearby in-building coverage.

The objectives for this site include offloading the Sperry tower at 46th & "Y" St, offloading the 19th & Holdrege site to the west, and bolstering in-building coverage in nearby 48th street corridor and university buildings of heavier construction. However, of these, the Sperry site offload is the most significant. While coverage and best server plots have been provided to allow comparisons there are no maps which can fairly represent a capacity problem.

The Maps

The maps provided do show the dramatic difference with and without the site as well as some less dramatic but important differences between 70' and 95'. The "best server" maps show the geographic area within each sector of a particular site. In other words, a caller within a particular colored area will be utilizing that sector of that tower and when they move into another colored area they are on either a different sector of the same tower or a sector on another adjacent tower. Crossing a color boundary is another way of visualizing a handoff from one tower to the next. The only problem here is that the "best server" map represents a static situation. In reality, as a site gets busier its "footprint" shrinks as it serves those callers nearby with strong signal while callers further away shift onto an adjacent tower if available because they find the site that would ordinarily provide the stronger signal busy.

For example, as the Sperry site reaches a critical call capacity level it sheds callers to other more distant sites which may present weak signal and capacity problems of their own. Having this site in place provides a "good home" for these callers which

might otherwise be dropped and the taller height provides a larger "home" encompassing more of these callers.

A comparison of the "best server" maps at 95' and 70' shows the division of labor between this site and Alltel's Northeast High School site remains about the same on the Wesleyan Campus at either height but there is significant offload of the Northeast High School site north of Adams Street at the taller height. The key area east of 48th and south of Leighton also goes from more green than white to more white than green at the taller height.

A comparison of the "coverage" maps at 95' and 70' shows a notable increase in strength of signal in the Leighton & 48th intersection and the main commercial area to the north, in the neighborhood north of Adams on both sides of 48th, and area east of 48th and south of Leighton.

Again, these map indicators are limited in their ability to illustrate the situation; the capacity issue is more easily explained in terms of graphs and numbers.

The Numbers

According to Alltel's radiofrequency (RF) engineer Kenneth Henry, the main objective for the 48th & Leighton site is to relieve traffic from the Sperry cell at 46th & Y St. The Sperry site is running at 100-120% and higher of recommended loading. In terms of day-to-day operation on all three antenna faces (sectors), Sperry is Alltel's busiest cell site in Lincoln. In terms of peak traffic loading caused by events, Sperry is the fourth busiest site after 15th & M, 19th & Holdrege and Terminal Building. Additional equipment was installed at Sperry in 2004, but the load is now back up in the 100-120% plus range.

Relief of at least 40% of Sperry's traffic load is the objective of the 48th & Leighton cell. The bulk of the subscribers served by Sperry are between 1/2 and 3/4 of a mile north and northeast of the cell. (Please note that this is not on the UNL-East or Wesleyan campuses.)

A traffic utilization graph for the Sperry site for the 2005 calendar year shows the excess traffic loading to be relieved. This graph entitled "Sperry Site Call Traffic Load" shows a yearly cycle with April-September as the busiest months and October-March at a lower level but still exceeding 100% utilization. The highest points represent the busiest days while the low points are generally weekend days and holidays where business related usage is down. This cycle is expected to repeat itself this year but at an even higher level of usage and carry with it the consequent service interruptions and negative impact on customers' business and personal communications as well as public safety.

Wireless providers generally try to limit significant capital expenditure as much as possible by using technological upgrades to meet capacity needs such as was done at the Sperry site in 2004. Construction of a new site or significant expenditures to extend an existing site is an option of last resort but one that is necessary here for Alltel to honor its obligation to serve its customers and the community and provide the service required of it under its FCC license.

NO EXISTING ALTERNATIVE LOCATIONS

As explained above, given the maturity of Alltel's system and the specific capacity issue to be addressed, the location for this site is much less flexible than in cases

where a coverage need is being addressed or an application is being submitted by a provider with a much smaller market share and less extensive system. The very limited search area is indicated on the Search Area Map provided with the optimal location being in its center and becoming less effective toward the outer edges.

This existing pole location is at the eastern edge of the search area but a more optimal location was constrained by the residential nature of the parcels to the northwest. Other than an extension of this pole on which Alltel proposes to locate, the nearest tower locations are those already owned or occupied by Alltel.

In response to inquiry about a university location, there are no buildings on the Wesleyan Campus suitable in terms of height or location for meeting the RF engineering objectives. In addition to being too far east of the designated search area, a location on the Wesleyan Campus would overlap unacceptably with the service provided by Alltel's pole location just south of the track on the campus of Lincoln Northeast High School (even with Madison Avenue and midway between 61st and 63rd Streets).

The UNL-East Campus in this area is open land used for experimental crop and other agricultural purposes and would require construction of another pole. Only that part of campus immediately south of Leighton would be viable from an RF engineering standpoint. Anything further south would overlap unacceptably with the Sperry site just to the south of campus.

If this extension is not allowed, the only other option is construction of another separate tower in the vicinity. Alltel believes that construction of an entirely separate new tower in this vicinity would be much more visually intrusive than an extension of an existing use.

The existing facility is the best fit with RF engineering objectives, is the only existing tower within the search area, and is a preferred location under Section 27.68.080(a)(2). The city's preference for co-location rather than construction of new towers is evident not only from the hierarchy of preferred locations, but also from the ground space and tower space requirements for future providers in the design criteria found in Section 27.68.110.

NECESSARY HEIGHT

The proposed pole extension is justified both from an RF engineering perspective and by virtue of Verizon's future physical occupancy of the space below Sprint's antennas.

The RF Engineering Need for Height

According to Alltel radiofrequency engineer Ken Henry, from an RF system design standpoint the request to extend the existing pole is for two main reasons, antenna separation between wireless carriers and the size of the cell created.

Cell Size

The reduction of Sperry's coverage area (which will relieve traffic load) requires making 48th & Leighton dominant in the area between Leighton and Holdrege from 48th to 60th St. and the 95' height is what will make 48th & Leighton dominant in this area.

The coverage difference between 70' and 95' is 6dB. To relate this in terms of antenna size (which is proportional to gain), it would be like reducing the antenna from 8' down to 2' at the same centerline. The differences in directivity (focus of the transmit energy in a particular direction) of a 2' antenna versus an 8' is enormous. The focused beam of an 8' antenna is 7-8 degrees, versus 28 degrees in a 2' antenna.

In actual coverage area, the service radius of the site (relative to its neighbors) would be reduced by 7/10 of a mile. To relate the service radius of the site to capacity, the lower centerline would reduce the relief of the Sperry cell down to 10-15%.

Physical Occupancy by Verizon

We have just become aware that Verizon is planning to utilize the space below Sprint on this monopole. Consequently, in addition to the RF justification there is now physical justification as there will no longer be usable space beneath the Sprint antennas and BTs equipment which occupies the pole from 75' to 80' (current top of pole). As discussed above, separation distance from another cellular carrier is 10' (Sprint is a PCS carrier so cellular providers like Alltel and Verizon can be closer to them but not to each other).

Antenna Separation

Antenna separation in common practice is generally 5' vertical separation between PCS and cellular carriers, 10' between A-band and B-band cellular, and 15' between cellular and 800-900MHz SMR (i.e. Nextel) antennas. The extension can be as short as it is because Alltel is a cellular carrier and Sprint is a PCS carrier. Likewise, Verizon can locate closer underneath the Sprint antennas because it is a cellular carrier. If Alltel were to be expected to go below Verizon a 10 foot separation would be necessary. The highest space that could be occupied by Alltel's 8' panels would be the clearly unacceptable space from 43'-51'. The use of one cellular provider above Sprint and one below is the most compact and efficient placement of antennas and keeps this pole height down to the 95' level while allowing use by 3 providers.

ZONING/PLANNING CONSIDERATIONS

This existing wireless facility is in a B-3 District and is a preferred location for co-location under Section 27.68.080(a)(2). The North 48th Street/University Place Redevelopment Plan calls for maintenance of the B-3 designation in this area.

The North 48th Street/University Place Redevelopment Plan also identifies 48th Street is a major arterial that carries at least 25,000 vehicles a day north of Leighton and 31,000 vehicles per day south of Leighton and points to the predominance of renter as opposed to owner occupied units inhabited by a younger population. Both the heavy vehicle traffic and the demographics skewed toward a young adult and student population (which has much greater wireless technology adoption and individual usage rates) help explain the cell traffic burden in this area.

In addition to its convenience to the business and personal welfare of the community, the role of this site in public safety should not be underestimated. The redevelopment plan emphasizes vision for the neighborhood as a secure place to own a home. The redevelopment plan reports plan also reports 182 crashes on 48th street alone in the 2000-2002 three-year study period. Cellular calls constitute a large percentage of emergency calls received and reliable service helps ensure the

reduction of response times and the type of instantaneous citizen participation that helps save lives and property in accidental, criminal, or natural disaster situations.

Alltel will flush mount its antennas to maintain consistency with the current Sprint mount and the existing Special Permit. Before and after photosimulations have been included to assist you in assessing the project's unobtrusiveness and harmony with the existing design. The ground equipment is screened from view on public streets (Huntington, Leighton, 48th) by existing buildings. Neither the current pole nor its proposed extension presents any significant visual impact to any historic building in the area. The older storefronts in the commercial area on 48th street to the north are at a higher elevation and their height as well as tree cover screens any view of the pole from 48th, consequently, there is no negative impact on the corridor's role as the "main street" of a traditional commercial district. The current pole does not dominate its surroundings and represents the kind of passive background infrastructure-type impact like streetlights and utility poles that doesn't get noticed unless one is looking for it specifically. The prospect of a separate pole for either Alltel or Verizon or both in this area is significantly more visually intrusive than use of this existing location.

MATERIAL INDEX

MATERIAL	SUPPLIED BY:	INSTALLED BY:
SHELTER	ALLTEL COMMUNICATIONS, INC.	CONTRACTOR
PPC	ALLTEL COMMUNICATIONS, INC.	CONTRACTOR
ANTENNAS & ANTENNA MOUNTING BRACKETS	ALLTEL COMMUNICATIONS, INC.	CONTRACTOR
COAX	ALLTEL COMMUNICATIONS, INC.	CONTRACTOR
GPS	ALLTEL COMMUNICATIONS, INC.	CONTRACTOR
TOWER EXTENSION	CONTRACTOR	CONTRACTOR
COAX TROUGH	CONTRACTOR	CONTRACTOR
GROUNDING ELECTRICAL & TELCO CONDUIT/WIRING	CONTRACTOR	CONTRACTOR
CONCRETE	CONTRACTOR	CONTRACTOR
STEEL BOLLARDS (CONCRETE FILLED)	CONTRACTOR	CONTRACTOR
CLOSE-PROXIMITY ANTENNA MOUNTS	CONTRACTOR	CONTRACTOR
LIGHTNING ROD	CONTRACTOR	CONTRACTOR



SITE NUMBER: 447
SITE NAME: 33RD & HUNNINGTON
ADDRESS: 47TH & LEIGHTON AVENUE
 LINCOLN, NE 68502
LATITUDE: 40°50'11.94" N (NAD83)
LONGITUDE: 96°39'16.23" W (NAD83)
ELEVATION: 1154.00' (NAVD88)
STRUCTURE: CO-LOCATE ON EXISTING 80'-0" MONOPOLE w/ 15'-0" PROPOSED EXTENSION BY ALLTEL

PROJECT CONTACTS

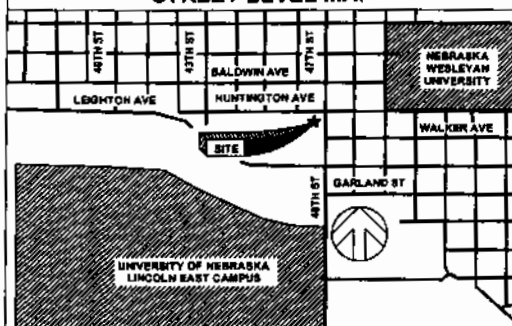
APPLICANT/ SITE ACQUISITION:	ALLTEL COMMUNICATIONS 1440 M STREET LINCOLN, NE 68508 CONTACT: TERRI DOLEZAL-3RD FLOOR PHONE: (402) 436-4278
PROPERTY OWNER:	P.O.B. APOLLO, LINCOLN, LP 2800 GRAND BLVD. STE. 700 KANSAS CITY, MO 64108 CONTACT: WILLIAM RICHARDS PHONE: (918) 898-0309
ENGINEERING CONSULTANT:	ASSOCIATED ENGINEERING, P.C. 157 NORTH MAIN STREET ELKHORN, NE 68022 PHONE: (402) 289-5040 FAX: (402) 289-5045
SURVEYOR:	K&M INC. LAND SURVEYING 340 W. INDUSTRIAL LAKE DR. #1 LINCOLN, NE 68528 PHONE: (402) 478-3020 FAX: (402) 478-3138
PROJECT ENGINEER:	ALLTEL COMMUNICATIONS 1440 M STREET LINCOLN, NE 68508 CONTACT: SCOTT HORKY-3RD FLOOR PHONE: (402) 436-4275
RF ENGINEER:	ALLTEL COMMUNICATIONS 2125 EAST ADAMS PHOENIX, AZ 85034 CONTACT: KEN HENRY PHONE: (602) 302-9826
ZONING JURISDICTION:	CITY OF LINCOLN 955 SO. 10TH STREET ROOM 213 LINCOLN, NE 68508 PHONE: (402) 441-7491
ELECTRIC COMPANY:	LES 1040 "O" STREET LINCOLN, NE 68508-3635 CONTACT: STEVE SCHAPPAUGH PHONE: (402) 467-7820
TELEPHONE COMPANY:	ALLTEL COMMUNICATIONS 2201 WINTHROP ROAD LINCOLN, NE 68502 PHONE: (800) 859-0445

VICINITY MAP

AREA MAP



STREET LEVEL MAP



DRIVING DIRECTIONS

START POINT: LINCOLN MUNICIPAL AIRPORT

- 1: WEST ON WEST ADAMS STREET TOWARD TERMINAL.
- 2: WEST ADAMS STREET BECOMES TERMINAL.
- 3: TURN SLIGHT LEFT.
- 4: TURN LEFT ONTO TERMINAL.
- 5: TERMINAL BECOMES WEST ADAMS STREET.
- 6: TAKE THE RAMP TOWARD I-80 E/US-77 NORTH.
- 7: TURN SLIGHT RIGHT ONTO N.W. 12TH STREET.
- 8: STAY STRAIGHT TO GO ONTO WEST CORNHUSKER HWY.
- 9: TURN RIGHT ONTO NORTH 33RD STREET.
- 10: TURN LEFT ONTO HUNTINGTON AVE.
- 11: HUNTINGTON AVE BECOMES LEIGHTON AVE.
- 12: TURN LEFT INTO PARKING LOT BEFORE 48TH STREET.

END: TOWER IS IN BACK OF BUILDING.

THESE DOCUMENTS ARE DRAWN TO SCALE
 FOR 24X36 SIZE SHEET.
 DOCUMENTS PRINTED IN 11X17 SIZE SHEET ARE
 REDUCED TO HALF THE ORIGINAL SCALE

DIGGERS HOTLINE
 of
 NEBRASKA



CALL
 1-800-331-5666
 24 HOURS BEFORE
 YOU DIG

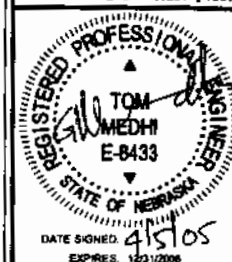
SHEET INDEX

T-1	TITLE SHEET
LS-1	SITE SURVEY
GN-1	GENERAL NOTES
C-1	OVERALL SITE PLAN
C-2	ENLARGED SITE PLAN
A-1	NORTH AND EAST ELEVATIONS
A-2	SOUTH AND WEST ELEVATIONS
A-3	ANTENNA SCHEDULE & ANTENNA DETAILS
A-4	PPC DETAILS
A-5	ANTENNA & PPC DETAILS
D-1	DEMOLITION/RECONSTRUCTION PLANS
E-1	CONDUIT PLAN/ONE LINE DIAGRAM
E-2	ELECTRICAL NOTES
G-1	GROUNDING PLAN
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
G-4	GROUNDING NOTES
S-1	SHELTER FOUNDATION DETAILS
S-2	SHELTER FOUNDATION DETAILS
S-3	COAX TROUGH DETAILS
SP-1	STRUCTURAL NOTES

MAY 24 2005

IN CHARGE
 PLANNING DEPARTMENT

ASSOCIATED
 ENGINEERING, PC
 157 NORTH MAIN ST.
 ELKHORN, NE 68022
 PH: (402) 289-5040
 FAX: (402) 289-5045
 AEPIC PROJECT #1059



APPLICANT/OWNER:

ALLTEL
 COMMUNICATIONS, INC.
 1440 M STREET
 3RD FLOOR
 LINCOLN, NE - 68508

DRAWN BY: CHK BY: APP BY:
 NAK NAK TM

APPROVALS:
 ALLTEL PROJECT ENGINEER
 ALLTEL PROPERTY SPECIALIST
 OWNER

ALLTEL SITE NAME:
**LINCOLN-33RD
 & HUNTINGTON**

ALLTEL SITE NUMBER:
447

REV.	DATE	DESCRIPTION
0	08/15/04	90% CONST. DWGS.
0	03/12/05	100% CONST. DWGS.
1	03/23/05	REV. PER CLIENT

DRAWING TITLE:

TITLE SHEET

DRAWING NUMBER:

T-1

PROJECT NUMBER:
 736545001

LOT 2, UPC 1st ADDITION, LOCATED IN THE SOUTHWEST QUARTER OF SECTION 17,
TOWNSHIP 10 NORTH, RANGE 7 EAST OF THE 9th P.M., LINCOLN, LANCASTER COUNTY,
NEBRASKA

THIS PART OF LOT 2, SEC. 1st ADDITION, LOCATED IN THE SOUTHWEST QUARTER OF SECTION 17, TOWNSHIP 19 NORTH, RANGE 2 EAST OF THE 9th P.M., LINCOLN, LANCASTER COUNTY, NEBRASKA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID LOT 2, L.P.C. 1st APPROX. THENCE
EASTERLY ALONG THE NORTH LINE OF SAID LOT 2, ON AN ASSUMED BEARING OF
N 89°37'14"E A DISTANCE OF 125.82', TO THE NORTHEAST CORNER OF SAID LOT 2
THENCE SOUTHERLY ON THE EAST LINE OF SAID LOT 2, 5.00' ± 0.05' N 4.00', TO THE
POINT OF BEGINNING FOR THE DESCRIBED LEAD, 18.00' ± 0.05' N 89°37'14"E
SOUTHWEST, 8.72' ± 0.05' S 89°37'14"E THENCE SOUTHWEST, 18.00' ± 0.05' N 89°37'14"E 18.00', THENCE
SOUTHWEST, 20.00', THENCE SOUTHWEST, 5.00' ± 0.05' N 89°37'14"E 10.00', TO THE
POINT OF BEGINNING FOR THE DESCRIBED LEADS, 18.00'.

CONTAINING A TOTAL AREA OF 300.00 SQUARE FEET, ON 0.01 ACRES, MORE OR LESS.

8447 PAGE OF LOVE 1 AND 2, WPC THE ADDITION, LOCATED IN THE SOUTHWEST
QUARTER OF SECTION 17, TOWNSHIP 10 NORTH, RANGE 7 EAST OF THE 6th P.M.,
LINCOLN, LINCOLN COUNTY, NEBRASKA, THE CONTROLLER BEING MORE PARTICULARLY
DESCRIBED AS FOLLOWS:

COMMENCED AT THE NORTHWEST CORNER OF SAID LOT 2, LFC 1st ADDITION; THENCE NORTHEASTLY ON THE NORTH LINE OF SAID LOT 1, ON AN ASSIGNED BEARING OF S 81°17'14" E A BEARING OF 18.17, TO THE POINT OF BEGINNING FOR THE CORNERLINE OF THE DESIRED ACCESS EASEMENT; THENCE SOUTHERLY, S 01°04'08" E 26.67, THENCE EASTERLY, S 89°30'31" E 14.15, TO THE POINT OF TERMINATION FOR THE CORNERLINE OF THE DESIRED ACCESS EASEMENT.

THAT PART OF LOT 2, UMC 1st ADDITION, LOCATED IN THE SEALTHWEST QUARTER OF SECTION 17, TOWNSHIP 18 NORTH, RANGE 7 EAST OF THE 6th P.M., LINCOLN, LOCATED COUNTY, MINNESOTA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID LOT 2, UPON THE ADJACENT THENCE EASTERLY ON THE NORTH LINE OF SAID LOT 3, ON AN ASSIGNED BEARING OF 125° 00' 00" E AND A DISTANCE OF 155.00 FEET TO THE NORTHERLY CORNER OF SAID LOT 2, THENCE SOUTHWESTLY ON THE EAST LINE OF SAID LOT 2, ON A BEARING OF 225° 00' 00" E, TO THE POINT OF BEGINNING FOR THE DESCRIBED UTILITY CORRIDOR; 2-NDICE CONTINUING SOUTHWESTLY, S 22° 29' 21" E 31.00'; THENCE NORTHEASTLY, N 82° 31' 18" E 7.00'; THENCE NORTHEASTLY, N 22° 29' 21" E 18.00'; THENCE NORTHEASTLY, N 69° 32' 18" E 8.00'; THENCE NORTHEASTLY, N 22° 29' 21" E 12.00'; THENCE SOUTHWESTLY, S 22° 29' 21" E 13.00'; TO THE POINT OF BEGINNING. 3-NDICE CONTINUING SOUTHWESTLY, S 22° 29' 21" E 13.00'; TO THE POINT OF BEGINNING.


E-3 COMMERCIAL, DISTRICT
 FRONT YARD SETBACK= 30'
 SIDE YARD SETBACK= 0'
 REAR YARD SETBACK= 0'

BY MEANS MAP LOOKUP AND GRAPHIC PLOTTING ONLY, THE SUBJECT PROPERTY LIES ENTIRELY IN ZONE "A" ACCORDING TO THE FLOOD INSURANCE RATE MAP FOR THE CITY OF LOS ANGELES, COMMUNITY No. 315273, PANEL No. 0310 E. REVISED 9-21-2001.

BACK FLOOD ELEVATION FOR THE HWY IS 1161.50 MONS AS DRAWN
ALL NEW STRUCTURES MUST BE ELEVATED 1.0' ABOVE BACK FLOOD ELEVATION
 $1161.50 + 1.00 = 1162.50$ MONS AS DRAWN

1. THE UNDERSIGNED, A FULLY LICENSED LAWYER, IS AND FOR THE STATE OF MISSISSIPPI, IN COUNTY OF HANCOCK, I CERTAIN A DEED TO BE MADE OF THE FOREGOING DESCRIBED PROPERTY, AND SAY THE RECORDS OF THIS DEED MAY BE TRULY AND ACCURATELY REPRODUCED IN THE DEED OF AN UNDEVELOPED AND UNLAWFUL, CHURCH AND MEMBERS IN 1961 AND 1962 OF A POOL.

IN WASHINGTON, MICHIGAN, MY HUSBAND AND I WERE THE 214 OUT OF 260,000

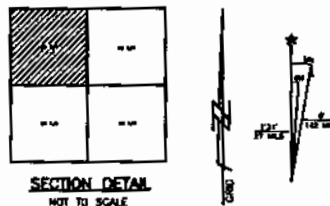


A map of Lincoln, Nebraska, showing the location of the Lincoln Convention Center and the Lincoln Convention Center Hotel. The map includes major highways (I-80, I-680, I-480, I-205, I-204, I-203, I-202, I-201, I-200, I-199, I-198, I-197, I-196, I-195, I-194, I-193, I-192, I-191, I-190, I-189, I-188, I-187, I-186, I-185, I-184, I-183, I-182, I-181, I-180, I-179, I-178, I-177, I-176, I-175, I-174, I-173, I-172, I-171, I-170, I-169, I-168, I-167, I-166, I-165, I-164, I-163, I-162, I-161, I-160, I-159, I-158, I-157, I-156, I-155, I-154, I-153, I-152, I-151, I-150, I-149, I-148, I-147, I-146, I-145, I-144, I-143, I-142, I-141, I-140, I-139, I-138, I-137, I-136, I-135, I-134, I-133, I-132, I-131, I-130, I-129, I-128, I-127, I-126, I-125, I-124, I-123, I-122, I-121, I-120, I-119, I-118, I-117, I-116, I-115, I-114, I-113, I-112, I-111, I-110, I-109, I-108, I-107, I-106, I-105, I-104, I-103, I-102, I-101, I-100, I-99, I-98, I-97, I-96, I-95, I-94, I-93, I-92, I-91, I-90, I-89, I-88, I-87, I-86, I-85, I-84, I-83, I-82, I-81, I-80, I-79, I-78, I-77, I-76, I-75, I-74, I-73, I-72, I-71, I-70, I-69, I-68, I-67, I-66, I-65, I-64, I-63, I-62, I-61, I-60, I-59, I-58, I-57, I-56, I-55, I-54, I-53, I-52, I-51, I-50, I-49, I-48, I-47, I-46, I-45, I-44, I-43, I-42, I-41, I-40, I-39, I-38, I-37, I-36, I-35, I-34, I-33, I-32, I-31, I-30, I-29, I-28, I-27, I-26, I-25, I-24, I-23, I-22, I-21, I-20, I-19, I-18, I-17, I-16, I-15, I-14, I-13, I-12, I-11, I-10, I-9, I-8, I-7, I-6, I-5, I-4, I-3, I-2, I-1, I-0) and the location of the Lincoln Convention Center and the Lincoln Convention Center Hotel.

- ☐ = PLAIN CELLING
- ▨ = SHADY GREEN
- ⊙ = POPE'S CATHEDRAL & MUSEUM
- ⊞ = ST. MICHAEL'S & MUSEUM
- ⚡ = ST. JOHN, POPE
- ⚡ = POPE'S MUSEUM

NOTE:
ALL BEARINGS ARE GOOD BEARINGS
ALL ELEVATIONS ARE ON ROAD 88.

NOS BENCH MARK
BRASS DISK (P/N LG1131)-STAMPED CORN 1947
LOCATED IN THE NE1/4, SEC 21, T11N, R9E
CLAYTON-1352



NOT TO SCALE

NOT TO SCALE

K & M INC.
LTD. SUPPLY
100 E. SUPERIOR, LVE Bld.
CHICAGO, ILL 60601
(312) 467-3300
(312) 467-3301 FAX

DATE 1/4, SECTION 17, T 10 N, R 7 E, S4th P.M.

LANCASTER COUNTY, NEBRASKA

TOWER SURVEY FOR
ALLTEL
47th & LEIGHTON AVENUE
LINCOLN, NEBRASKA

RECEIVED
MAY 25 2005
COLN CITY/LANCASTER CO.
PLANNING DEPARTMENT

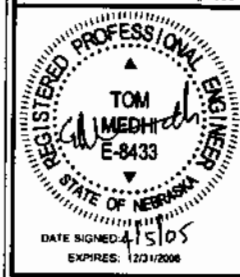
Field SAC, Jt & M
 Dallas SAC
 Brown Div SAC
 Omaha Div SAC

FIELD DATA:
Block 137, Page 138

DATE: 7-15-04

Day: 3-26-04
 Reading: 4-2-03

**ASSOCIATED
ENGINEERING, PC**
157 NORTH MAIN ST.
ELKHORN, NE 68022
PH: (402) 289-5040
FAX: (402) 289-5045
AEPD PROJECT #1059



APPLICANT/OWNER:

ALLTEL
COMMUNICATIONS, INC.
1440 M STREET
3RD FLOOR
LINCOLN, NE - 68508

DRAWN BY: CHK BY: APV BY:

NAK NAK TM

APPROVALS:

ALLTEL PROJECT ENGINEER

ALLTEL PROPERTY SPECIALIST

OWNER

ALLTEL SITE NAME:

**LINCOLN-33RD
& HUNTINGTON**

ALLTEL SITE NUMBER:

447

SUBMITTALS

REV.	DATE	DESCRIPTION
0	08/15/04	90% CONST. DWGS.
0	03/12/05	100% CONST. DWGS.
1	03/25/05	REV. PER CLIENT

DRAWING TITLE:

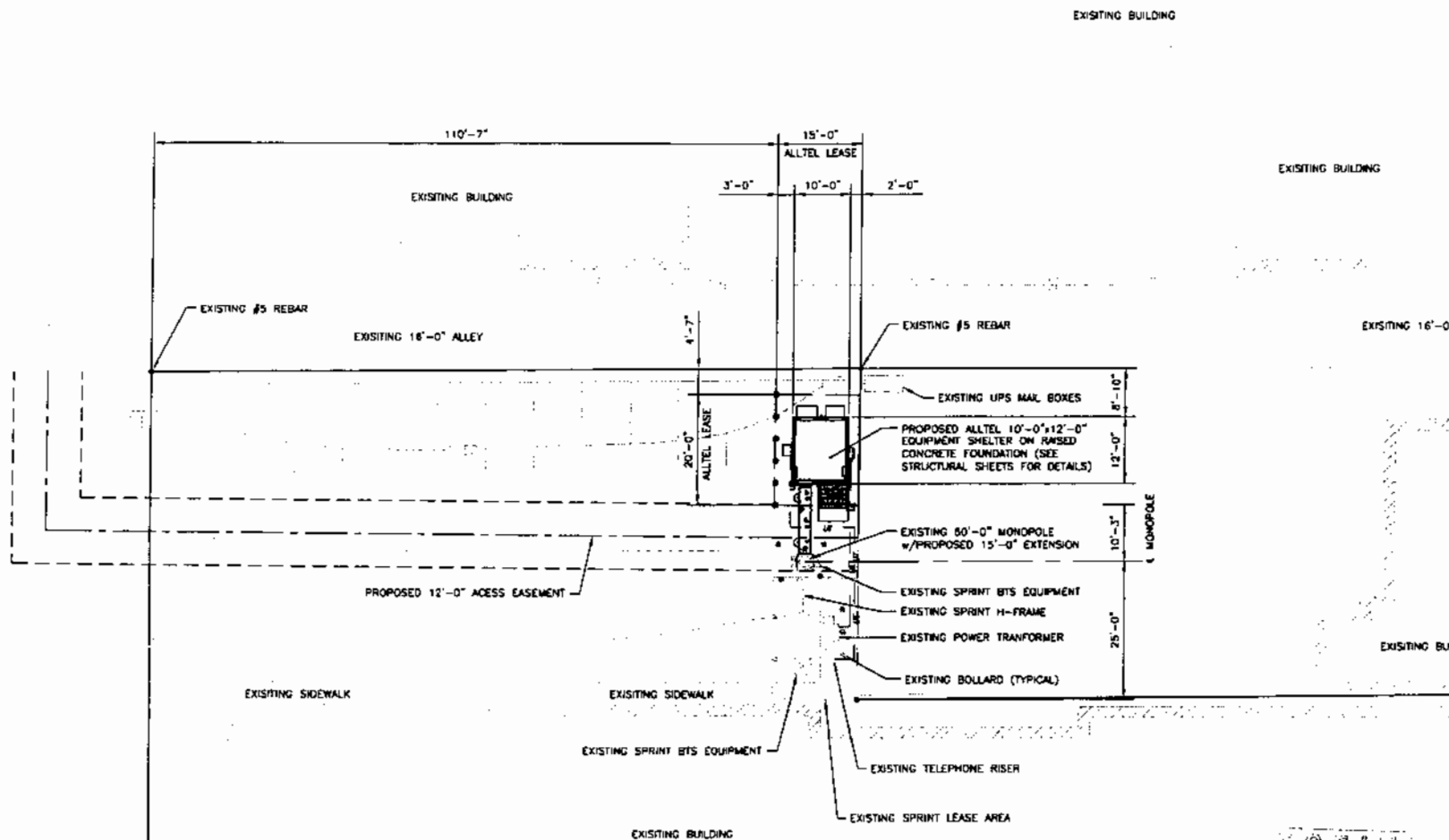
**OVERALL
SITE PLAN**

DRAWING NUMBER:

C-1

PROJECT NUMBER:

736545001



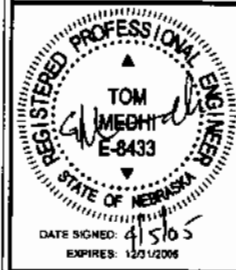
1 OVERALL SITE PLAN
SCALE: 1"=10'-0"

RECEIVED

MAY 25 2005

CITY/LANCASTER
PLANNING DEPARTMENT

ASSOCIATED
ENGINEERING, PC
157 NORTH MAIN ST.
ELKHORN, NE 68022
PH: (402) 289-5040
FAX: (402) 289-5045
AEC PROJECT #1059



APPLICANT/OWNER:
ALTTEL COMMUNICATIONS, INC.
1440 M STREET
3RD FLOOR
LINCOLN, NE - 68508

DRAWN BY: CHK BY: APV BY:
NAK NAK TM

APPROVALS:
ALTTEL PROJECT ENGINEER
ALTTEL PROPERTY SPECIALIST
OWNER

ALTTEL SITE NAME:
LINCOLN-33RD & HUNTINGTON

ALTTEL SITE NUMBER:
447

SUBMITTALS

REV.	DATE	DESCRIPTION
0	06/15/04	50% CONST. DWGS.
0	03/12/05	100% CONST. DWGS.
1	03/25/05	REV. PER CLIENT

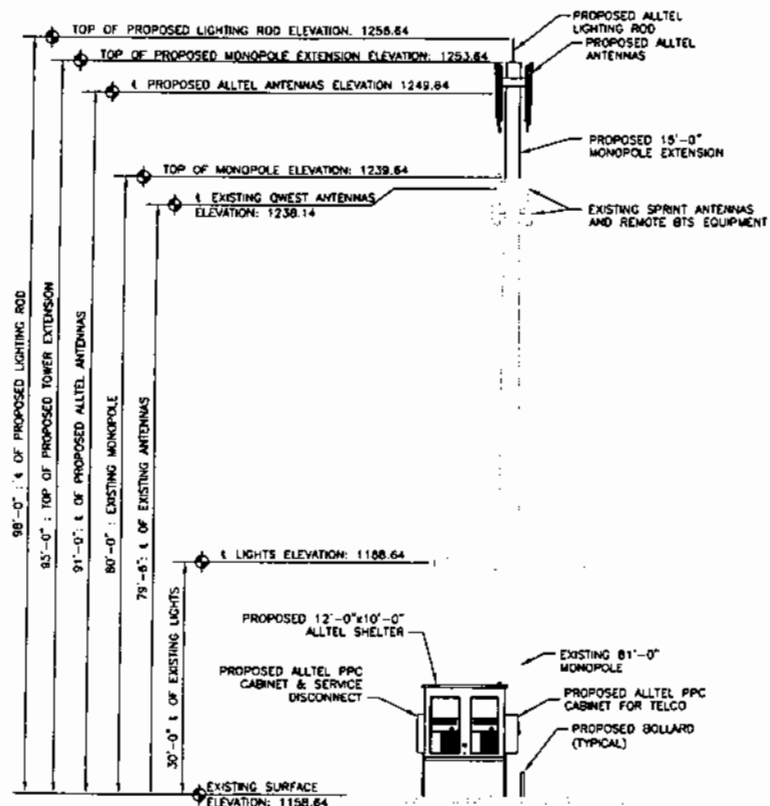
DRAWING TITLE:
NORTH & EAST ELEVATIONS

DRAWING NUMBER:
A-1

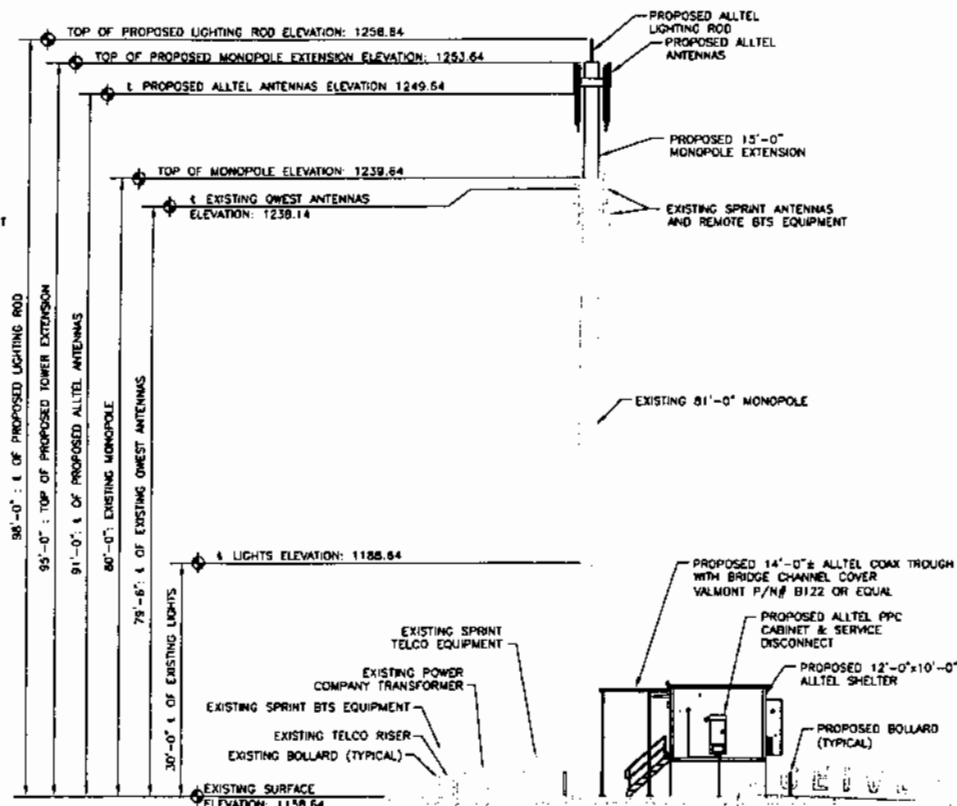
PROJECT NUMBER:
736545001

NOTE:
ALL ELEVATIONS ARE NAVD 88
GROUND ELEVATION: 1158.64
100 YR. BASE FLOOD ZONE: 1161.50
FINISHED FLOOR ELEV.: 1163.14

THE CONTRACTOR SHALL VERIFY ALL
EXISTING TOPOGRAPHY AND HORIZONTAL
GEOMETRY AS INDICATED ON THESE
DRAWINGS. IMMEDIATELY NOTIFY THE
CONSTRUCTION MANAGER OF ANY
DISCREPANCIES OR INTERFERENCE
WHICH AFFECT THE WORK UNDER
THIS CONTRACT.



1 NORTH ELEVATION
SCALE: 3/8"=1'-0"



2 EAST ELEVATION
SCALE: 3/8"=1'-0"

MAY 25 2005

LINCOLN CITY/LANCASTER COUNTY
PLANNING DEPARTMENT





View looking from north to south with proposed antenna and shelter.

MAY 25 2005

JOHN CITY/LANCASTER
PLANNING DEPARTMENT



View from east looking west without proposed antenna.

CEIV

MAY 25 2005

CITY OF LANCASTER
PLANNING DEPARTMENT



View from east looking west with proposed antenna.



View from west looking east without proposed material and shelter

RECEIVED
MAY 25 2005
CITY OF LANCASTER
PLANNING DEPARTMENT



View from west looking east with proposed antenna and shelter.

RECEIVED

MAY 25 2005

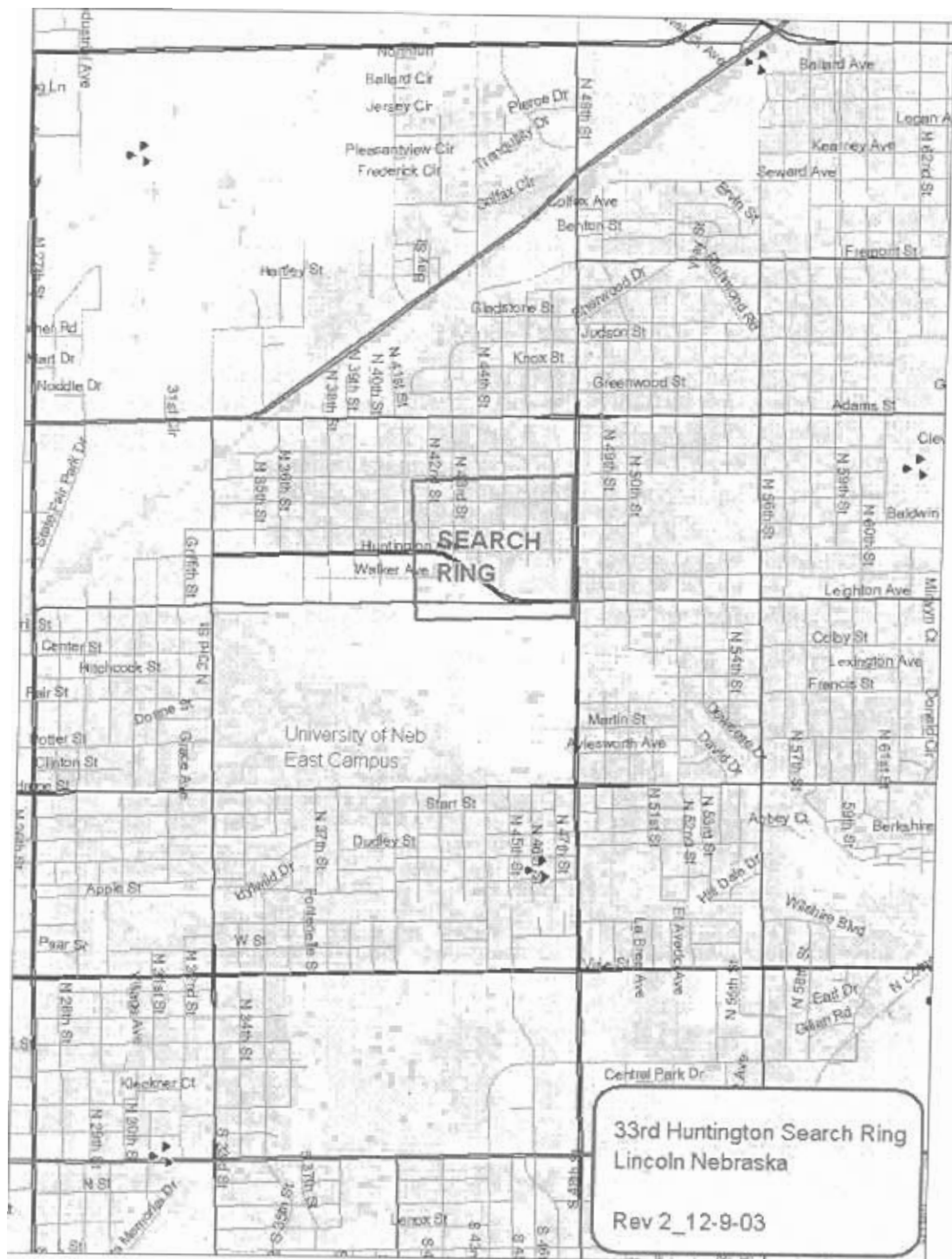
TECHNICAL SERVICES
PLANNING DEPARTMENT



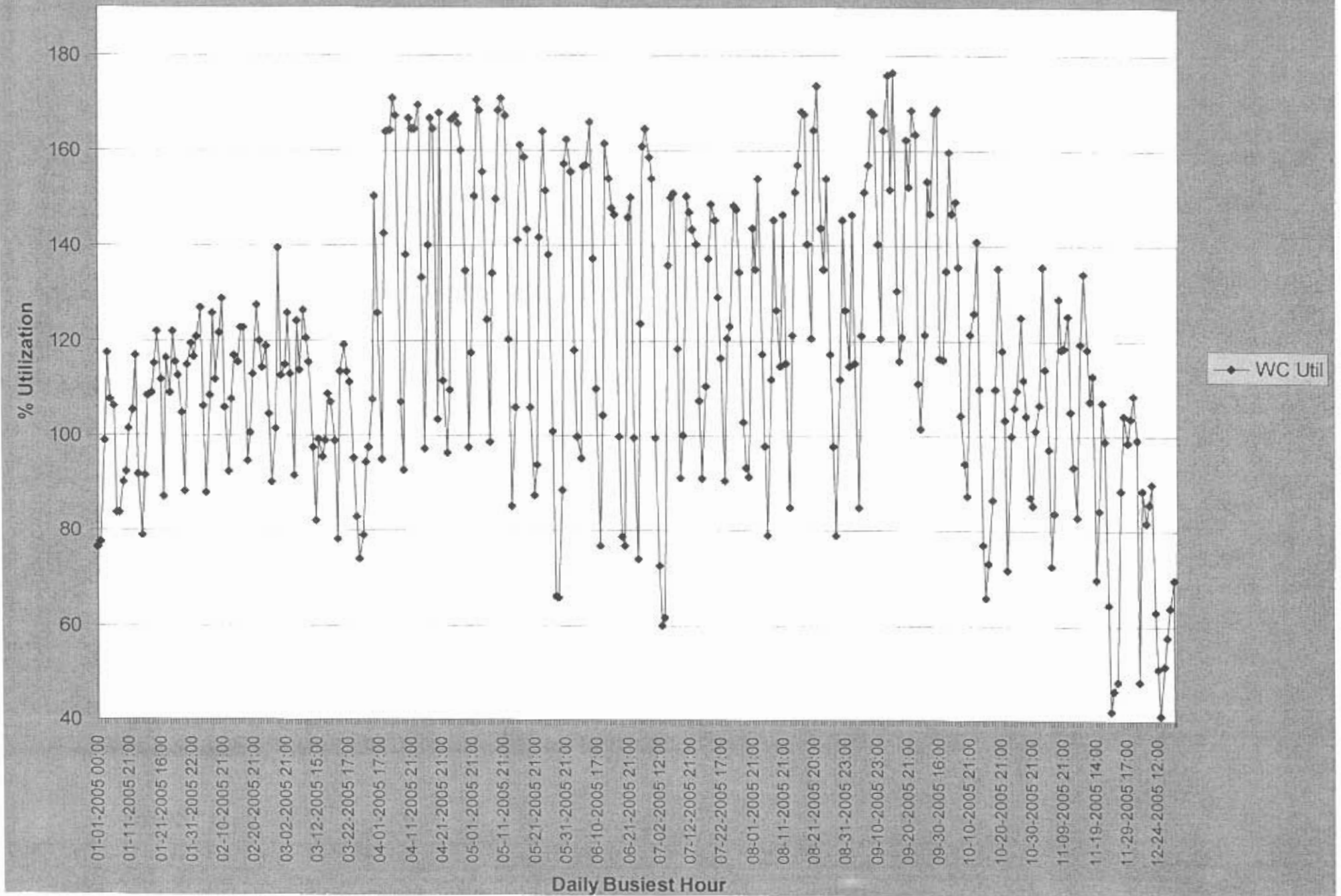
View from south looking north without proposed antenna.



View from south looking north with proposed antenna.



Sperry Traffic Utilization





Best Server Map at 70 Feet

